

Proposed Amendment

Application Serial Number: 10/645,983
1.116 Amendment dated December 16, 2005
Reply to Office Action dated August 8, 2005

Docket Number: 43744-183259

REMARKS

The above Amendment and the following remarks are responsive to the Office Action dated August 8, 2005. The Applicant requests entry of this Amendment, favorable reconsideration of this case, and early issuance of a Notice of Allowance.

Status of the Claims

Upon entry of this Amendment, the Applicant has rewritten claims 1, 4, 5, 8, 12, 13, 14, 16, 20, 22, 23, 25 and 27. Thus, claims 1-30 are pending in the application. Claims 1, 8, 14, 20, and 25 are independent claims.

Allowable Claims

The Examiner has indicated that claims 7, 12, 14-19 and 22-23 would be allowable if rewritten to overcome the rejections under 37 C.F.R. § 112, 2nd paragraph and to include all of the limitations of the base claim and any intervening claims. In addition to rewriting the claims to overcome the rejections under 37 C.F.R. § 112, 2nd paragraph, this Amendment rewrites independent claims 1, 8, 14, 20 and 25 to incorporate the allowable claim limitations from allowable claims 7, 12, 14-19 and 22-23, namely that the first gas vent includes a plurality of openings radially arranged with each opening cut generally perpendicular to the longitudinal axis of the gun barrel.

Examiner Interview

The Applicant reviewed the content of this Amendment with the Examiner via a telephone conference on December __, 2005. As a result of that teleconference ...

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Response to the Rejection under 35 U.S.C. § 112, Second Paragraph

The Examiner rejected claims 1, 4-5, 8, 13-14, 16, 20, 22-23, and 25 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that the Applicants regard as the invention.

The Examiner indicates that the phrase “the gas vents” in claims 4-5 make the claim indefinite as to whether the first or second gas vent is intended. In response, the Applicant has rewritten claims 4-5 to clarify that the “first gas vent” is intended in claim 4 and the “second gas vent” is intended in claim 5. The Applicant believes that claims 4-5, as presently claimed, is allowable because those claims are definite, particularly point out and distinctly claim the subject matter that the Applicant regards as the invention, and have proper antecedent basis. Thus, the Examiner should withdraw this rejection as to claims 4-5.

The Examiner indicates that the phrase “a second end” in claim 13 should be claimed as “said second end” if the previously claimed “second end” is intended. In response, the Applicant has rewritten claim 13 to refer to “the first end” to agree with the muzzle stabilizer shown in the drawings. The Applicant believes that claim 13, as presently claimed, is allowable because it is definite, particularly points out and distinctly claims the subject matter that the Applicant regards as the invention, and has proper antecedent basis. Thus, the Examiner should withdraw this rejection as to claim 13.

The Examiner indicates that it is not clear in claim 16 how the claimed “a gas vent disposed at an angle of thirty degrees” relates to the previously claimed “at least one of said at least one slot gas vent nearest a second end of the tubular body has an angle that is non-parallel”. In response, the Applicant has rewritten claim 16 to indicate that the “angle of said at least one

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slot gas vent is thirty degrees". The Applicant believes that claim 16, as presently claimed, is allowable because it is definite, particularly points out and distinctly claims the subject matter that the Applicant regards as the invention, and has proper antecedent basis. Thus, the Examiner should withdraw this rejection as to claim 16.

The Examiner indicates that the phrase "at least one slot gas vent" in claim 14 is indefinite because the Applicant later claims at least one gas vent near the first end and at least one gas slot near the second end, thus, at least two slot gas vents. In response, the Applicant has rewritten claim 14 to more clearly specify that the tubular body comprises "gas vents of graduated sizes radially arranged about the tubular body and at least one slot gas vent". The Applicant believes that claim 14, as presently claimed, is allowable because it is definite, particularly points out and distinctly claims the subject matter that the Applicant regards as the invention, and has proper antecedent basis. Thus, the Examiner should withdraw this rejection as to claim 14.

The Examiner indicates that it is not clear in claim 22 how the claimed "the gas vents" relates to the previously claimed "a first gas vent". In response, the Applicant has rewritten claim 22 to "the plurality of openings of the first gas vent". The Applicant believes that claim 22, as presently claimed, is allowable because it is definite, particularly points out and distinctly claims the subject matter that the Applicant regards as the invention, and has proper antecedent basis. Thus, the Examiner should withdraw this rejection as to claim 22.

The Examiner indicates that it is not clear in claim 23 how the claimed "a gas vent disposed at thirty-degrees" relates to the previously claimed "a second gas vent". In response, the Applicant has rewritten claim 23 to indicate that the "second gas vent is disposed at a thirty-

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degree angle from the longitudinal axis". The Applicant believes that claim 23, as presently claimed, is allowable because it is definite, particularly points out and distinctly claims the subject matter that the Applicant regards as the invention, and has proper antecedent basis. Thus, the Examiner should withdraw this rejection as to claim 23.

The Examiner indicates that the phrase "an attachment flange connected to the first end" and "a gas regulator threadedly engaged with the second end" in claims 1, 8, 14, 20 and 25 does not describe the muzzle stabilizer shown in the drawings. In response, the Applicant has rewritten claims 1, 8, 14, 20 and 25 to claim "an attachment flange connected to the second end of the tubular body" and "a gas regulator threadedly engaged with the first end of the tubular body" as shown in the drawings. The Applicant believes that claims 1, 8, 14, 20 and 25, as presently claimed, is allowable because those claims are definite, particularly point out and distinctly claim the subject matter that the Applicant regards as the invention, and have proper antecedent basis. Thus, the Examiner should withdraw this rejection as to claims 1, 8, 14, 20 and 25.

Response to the Rejections under 35 U.S.C. § 102

The Examiner rejected claims 8-11, 20-21, and 24-30 as being anticipated by Cave, United States Patent Number 4,879,942 (hereinafter "Cave"). The Examiner also rejected claims 20-21 and 24 as being anticipated by Garriss et al., United States Patent Number 4,813,333 (hereinafter "Garriss"). The Applicants respectfully traverses each of these rejections.

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Rejection of Claims 8-11, 20-21, and 24-30 based on Cave

Anticipation requires that each and every element of the claims must be present in the cited prior art reference. As amended, the claims are not anticipated by Cave.

Cave describes a muzzle brake that attaches to a gun barrel. The muzzle brake has “a first set of vents” nearest the muzzle end of the gun barrel and “a second set of vents” farthest from the muzzle end of the gun barrel. Independent claims 8, 20 and 25, as presently claimed, describe a muzzle brake for a gun barrel which has a first gas vent and a second gas vent. Since the presently claimed “first gas vent” is farthest from the muzzle end of the gun barrel, it is analogous to the “second set of vents” in Cave. Similarly, since the presently claimed “second gas vent” is nearest the muzzle end of the gun barrel, it is analogous to the “first set of vents” in Cave. The following table compares the analogous elements of Cave and the presently claim invention.

| Cave | Independent claims 8, 20 and 25, as presently claimed |
|--|--|
| The second set of vents (<u>farthest</u> from the muzzle end of the gun barrel) include <u>two slot vents</u> that are transverse to the longitudinal axis of the gun barrel with a discharge angle perpendicular to the longitudinal axis of the gun barrel. | The first gas vent (<u>farthest</u> from the muzzle end of the gun barrel) comprises a <u>plurality of openings radially arranged</u> about the tubular body with each opening having a discharge angle that is perpendicular to the longitudinal axis of the tubular body. |

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| Cave | Independent claims 8, 20 and 25, as presently claimed |
|---|--|
| The first set of vents (<u>nearest</u> the muzzle end of the gun barrel) include a <u>plurality of vent holes radially arranged</u> about the upper half of the main body of the muzzle brake with a discharge angle away from the shooter at a 70 to 75 degree angle relative to the longitudinal axis of the gun barrel. | The second gas vent (<u>nearest</u> the muzzle end of the gun barrel) has an angle that is non-parallel to the angle of the first gas vent. |

In Cave, the second set of vents (those farthest from the muzzle end of the gun barrel) include two radial slot vents longitudinally arranged with a discharge angle cut generally perpendicular to the longitudinal axis of the gun barrel. In contrast, the first gas vent in the presently claimed invention includes a plurality of openings radially arranged with each opening cut generally perpendicular to the longitudinal axis of the gun barrel. Thus, since Cave does not include each element of the claimed invention, the Applicants believe that the Examiner should withdraw this anticipation rejection based on Cave as to independent claims 8, 20 and 25.

Claims 9-11 depend from independent claim 8, claims 21 and 24 depend from independent claim 20, and claims 26-30 depend from independent claim 25. For the previously stated reasons, independent claims 8, 20 and 25 are allowable. Since any claim that depends from an allowable independent claim is also allowable, the Applicant believes that the Examiner should also withdraw this anticipation rejection based on Cave as to dependent claims 9-11, 21, 24 and 26-30.

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Rejection of Claims 20-21 and 24 Based on Garris

Anticipation requires that each and every element of the claims must be present in the cited prior art reference. As amended, the claims are not anticipated by Garris.

Garris describes a device for firearms that attaches to the muzzle end of a firearm to stabilize the muzzle and to suppress the flash during firing. The device includes two surface openings longitudinally arranged through which firing gases escape, the first surface opening is farthest from the muzzle end of the firearm and the second surface opening is nearest the muzzle end of the firearm. Independent claim 20, as presently claimed, describes a muzzle brake for a gun barrel which has a first gas vent and a second gas vent. Since the presently claimed "first gas vent" is farthest from the muzzle end of the gun barrel, it is analogous to the "first surface opening" in Garris. Similarly, since the presently claimed "second gas vent" is nearest the muzzle end of the gun barrel, it is analogous to the "second surface opening" in Garris. The following table compares the analogous elements of Garris and the presently claim invention.

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| Garris | Independent claim 20, as presently claimed |
|---|--|
| <p>As shown in Figures 1, 2 and 5:</p> <p>The first surface opening (<u>farthest</u> from the muzzle end of the firearm) is a <u>slot vent</u> radially arranged and cut generally perpendicular to the longitudinal axis of the device.</p> <p>The second surface opening (<u>nearest</u> the muzzle end of the firearm) is a slanted opening <u>cut at a slant to the longitudinal axis</u> of the device so that gases exit away from the firer.</p> | <p>The first gas vent (<u>farthest</u> from the muzzle end of the gun barrel) comprises a <u>plurality of openings</u> radially arranged about the tubular body with each opening having a discharge angle that is perpendicular to the longitudinal axis of the tubular body.</p> <p>The second gas vent (<u>nearest</u> the muzzle end of the gun barrel) has <u>an angle that is non-parallel to the angle of the first gas vent</u>.</p> |

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| Garris | Independent claim 20, as presently claimed |
|---|---|
| <p>As shown in Figure 4, an alternative embodiment:</p> <p>The first surface opening (<u>farthest</u> from the muzzle end of the firearm) includes <u>a plurality of circular openings radially arranged</u> and cut generally <u>perpendicular</u> to the longitudinal axis of the device.</p> <p>The second surface opening (<u>nearest</u> the muzzle end of the firearm) includes <u>a plurality of longitudinal slots radially arranged</u> and cut generally <u>perpendicular</u> to the longitudinal axis of the device.</p> | <p>The first gas vent (<u>farthest</u> from the muzzle end of the gun barrel) comprises <u>a plurality of openings radially arranged</u> about the tubular body with each opening having a discharge angle that is <u>perpendicular</u> to the longitudinal axis of the tubular body.</p> <p>The second gas vent (<u>nearest</u> the muzzle end of the gun barrel) has <u>an angle that is non-parallel to the angle of the first gas vent</u>.</p> |

In Figures 1, 2 and 5 of Garris, the first surface opening (the opening farthest from the muzzle end of the gun barrel) is a slot vent. In contrast, the first gas vent in the presently claimed invention includes a plurality of openings that are radially arranged. In Figure 4 of Garris, the second surface opening (the opening nearest the muzzle end of the firearm) includes two longitudinal slot vents radially arranged and cut generally perpendicular to the longitudinal axis of the gun barrel. In contrast, the second gas vent in the presently claimed invention is cut at an angle non-parallel to the first gas vent. Thus, since Garris does not include each element of the claimed invention, the Applicants believe that the Examiner should withdraw this anticipation rejection based on Garris as to independent claim 20.

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Claims 21 and 24 depend from independent claim 20. For the previously stated reasons, independent claim 20 is allowable. Since any claim that depends from an allowable independent claim is also allowable, the Applicant believes that the Examiner should also withdraw this anticipation rejection based on Garris as to dependent claims 21 and 24.

Response to the Rejections under 35 U.S.C. § 103

The Examiner rejected claims 1-4 and 13 as being unpatentable over Cave in view of Davies, United States Patent Number 6,308,609 (hereinafter "Davies"). The Examiner rejected claim 5 as being unpatentable over Caves in view of Davies and further in view of Rose, United States Patent Number 5,698,810 (hereinafter "Rose"), Tripp, United States Patent Number 5,020,416 (hereinafter "Tripp") or Chahin, United States Patent Number 4,869,151 (hereinafter "Chahin"). The Examiner rejected claims 1-2 and 4-6 as being unpatentable over Garris in view of Davies. The Applicants respectfully traverses each of these rejections.

Rejection of Claims 1-4 and 23 based on Cave in view of Davies

A *prima facie* case of obviousness requires a prior art reference or combination of references to meet three criteria. First there must be some suggestion or motivation, either in the cited reference or in the knowledge of one skilled in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference or combination of references must teach or suggest all the claim limitations. Cave and Davies, taken either alone or in combination, do not teach or suggest the claims as amended.

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For the reasons stated in the previous section titled "Response to the Rejections under 35 U.S.C. § 102", Cave alone does not teach or suggest all of the limitations of independent claims 8, 20 and 25. Since independent claim 1, as presently claimed, includes similar limitations to those noted in independent claims 8, 20 and 25, Cave alone also does not teach or suggest all of the limitations of independent claim 1.

Davies describes an apparatus for reducing muzzle blast upon discharge of one or more projectiles from a gun. The Examiner relies on the disclosure in Davies for the teaching of a thread pattern for attaching muzzle elements of at least 24 threads per inch. Davies does not make up for the shortcomings of Cave by describing, as presently claimed in independent claims 1 and 20, a first gas vent that includes a plurality of openings radially arranged with each opening cut generally perpendicular to the longitudinal axis of the gun barrel. For this reason, the Applicant believes that the Examiner should withdraw this obviousness rejection because Cave and Davies, taken alone or in combination, do not render obvious the presently claimed invention in independent claims 1 and 20.

Rejection of Claim 5 based on Cave in view of Davies and further in view of Rose, Tripp or Chahin

A *prima facie* case of obviousness requires a prior art reference or combination of references to meet three criteria. First there must be some suggestion or motivation, either in the cited reference or in the knowledge of one skilled in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference or combination of references must teach or suggest all the claim

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limitations. Cave, Davies and Rose, Tripp or Chahin, taken either alone or in combination, do not teach or suggest the claims as amended.

For the reasons stated in the previous section titled "Response to the Rejections under 35 U.S.C. § 102", Cave alone does not teach or suggest all of the limitations of independent claims 8, 20 and 25. Since independent claim 1, as presently claimed, includes similar limitations to those noted in independent claims 8, 20 and 25, Cave alone also does not teach or suggest all of the limitations of independent claim 1.

For this reasons stated in the previous section titled "Rejection of Claims 1-4 and 23 based on Cave in view of Davies", Cave and Davies, taken alone or in combination, do not teach or suggest all of the limitations of independent claim 1.

Rose describes a ballistic optimizing system that improves the single shot accuracy of a firearm. The Examiner relies on the disclosure in Rose for the teaching of gas vents that include a row of bores (element 69) and ports (element 98) cut to discharge gases away from the central axis of the rifle bore at a thirty degree angle. Rose does not make up for the shortcomings of Cave by describing, as presently claimed in independent claims 1 and 20, a first gas vent that includes a plurality of openings radially arranged with each opening cut generally perpendicular to the longitudinal axis of the gun barrel. For this reason, the Applicant believes that the Examiner should withdraw this obviousness rejection because Cave, Davies and Rose, taken alone or in combination, do not render obvious the presently claimed invention in independent claims 1 and 20.

Tripp describes a muzzle brake for a firearm. The Examiner relies on the disclosure in Tripp for the teaching of a gas vent angled at about a thirty degree angle. Tripp does not make

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up for the shortcomings of Cave by describing, as presently claimed in independent claims 1 and 20, a first gas vent that includes a plurality of openings radially arranged with each opening cut generally perpendicular to the longitudinal axis of the gun barrel. For this reason, the Applicant believes that the Examiner should withdraw this obviousness rejection because Cave, Davies and Tripp, taken alone or in combination, do not render obvious the presently claimed invention in independent claims 1 and 20.

Chahin describes a noise and recoil suppressor apparatus for high powered rifles. The Examiner relies on the disclosure in Chahin for the teaching of a gas vent angled at about a thirty degree angle. Chahin does not make up for the shortcomings of Cave by describing, as presently claimed in independent claims 1 and 20, a first gas vent that includes a plurality of openings radially arranged with each opening cut generally perpendicular to the longitudinal axis of the gun barrel. For this reason, the Applicant believes that the Examiner should withdraw this obviousness rejection because Cave, Davies and Chahin, taken alone or in combination, do not render obvious the presently claimed invention in independent claims 1 and 20.

Rejection of Claims 1-2 and 4-6 based on Garris in view of Davies

A *prima facie* case of obviousness requires a prior art reference or combination of references to meet three criteria. First there must be some suggestion or motivation, either in the cited reference or in the knowledge of one skilled in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference or combination of references must teach or suggest all the claim limitations. Garris and Davies, taken either alone or in combination, do not teach or suggest the claims as amended.

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For the reasons stated in the previous section titled "Response to the Rejections under 35 U.S.C. § 102", Garris alone does not teach or suggest all of the limitations of independent claim 20. Since independent claim 1, as presently claimed, includes similar limitations to those noted in independent claim 20, Garris alone also does not teach or suggest all of the limitations of independent claim 1.

Davies describes an apparatus for reducing muzzle blast upon discharge of one or more projectiles from a gun. The Examiner relies on the disclosure in Davies for the teaching of a thread pattern for attaching muzzle elements of at least 24 threads per inch. Davies does not make up for the shortcomings of Garris by describing, as presently claimed in independent claim 1, a first gas vent that includes a plurality of openings radially arranged with each opening cut generally perpendicular to the longitudinal axis of the gun barrel. For this reason, the Applicant believes that the Examiner should withdraw this obviousness rejection because Garris and Davies, taken alone or in combination, do not render obvious the presently claimed invention in independent claim 1.

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AUTHORIZATION

The undersigned hereby authorizes the Commissioner to charge all required fees, fees under 37 C.F.R. §§ 1.16 and 1.17, or all required extension of time fees for this paper to Deposit Account Number 50-0573.

Respectfully submitted,
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